



MARSHALL STAR

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April 28, 2005



After five days of service and upgrade work on the Hubble Space Telescope, the STS-109 crew photographed the giant telescope returning to its normal routine.

NASA, Hubble celebrate 15 years

By Rick Smith

Fifteen years in orbit. More than 700,000 awe-inspiring photos. But last Monday, the Hubble Space Telescope, launched to space April 25, 1990, celebrated its anniversary like any other day. Spinning around the planet at 5 miles per second, 375 miles high, Hubble gazed into the depths of space -- and kept on flying.

NASA marked the date by issuing new views of two of Hubble's most well-known subjects: the eerie Eagle Nebula, and spiral galaxy M51, or the "Whirlpool Galaxy." The mural-sized pictures were unveiled Monday at the Smithsonian's National Air and Space Museum in Washington, and at more than 100 other museums and science centers across the country.

Dr. Melissa McGrath, deputy director of Marshall's Science and Technology Directorate, was an astronomer at the Space Telescope Science Institute in Baltimore -- the non-profit science operations center for Hubble -- during much of the space observatory's career. She has never forgotten some of those amazing images.

"It's like witnessing a total solar eclipse or seeing a Shuttle launch firsthand," McGrath said. "It's an indescribable, life-changing experience. It's the essence of why we pursue science."

At the Marshall Center, where engineers and scientists designed, developed and built the Hubble Telescope in the 1980s, there is still a lot of pride in the workhorse observatory.

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Shuttle targets launch date

By Lynnette Madison

NASA is targeting May 22 through June 3 for Space Shuttle Discovery's STS-114 Return to Flight mission. The official launch date will be set at the mission's Flight Readiness Review planned May 10-11 at Kennedy Space Center.

A five-minute launch opportunity May 22 begins at 12:03 p.m. CDT.

The decision on the launch window -- announced by Bill Parsons, Space Shuttle Program manager, and Wayne Hale, deputy manager, in a news media teleconference April 20 -- was made following the program's Design Certification Review April 19 at Kennedy.

"The Design Certification Review was the culmination of more than two years of engineering effort to make a number of changes to the Space Shuttle vehicle," said Hale. "This has been an engineering process all along, backed by testing and good solid engineering analysis. What we are doing by following a rigorous engineering process is ensuring that we're very thorough."

During the review, NASA managers considered 20 major changes and about 40 minor changes made to the Shuttle system since the 2003 Columbia accident. All of the changes were certified, or cleared for flight, except the orbiter boom sensor system that will be used in space to inspect the Shuttle for damage.

"We know the work that's in front of us, and we feel very comfortable in our ability to go get that work done," said Parsons.

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Hubble

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"There weren't many people at Marshall then whose work didn't touch on Hubble in some way," said retired NASA veteran Fred Wojtalik, who served as Hubble project manager at Marshall between 1987 and 1990. "We all knew this could be the best thing ever to happen to astronomy."

James Odom also remembers the energy and excitement of that period. Odom, a retired NASA engineer who managed Hubble during its systems integration phase in the mid-1980s, said the complexity of the hardware was remarkable. But Marshall engineers and their industry counterparts were up to the task. "The quality and capabilities of that team, from the NASA personnel to the contractors and scientists, were unsurpassed," Odom said.

Also impressive was "the number of technology problems we had to lick," said Dr. Jean Olivier, former Hubble chief engineer, who retired from NASA in 2000. "Every step was a challenge, from the optics and science instruments to the structural hardware." Hubble was the first satellite development effort to include emphasis on human servicing capabilities, Olivier said, meaning it required a radically different design from conventional craft.

The crew of Shuttle Discovery placed Hubble in orbit in 1990 during the STS-31 mission. There, it returned the first-ever visible-light images of the universe free of atmospheric distortion -- and up to 10 times sharper than any telescope had ever delivered.

NASA's Goddard Center and the Space Telescope Science Institute now manage Hubble operations. McGrath, who spent 12 years at the Institute before joining NASA in 2005, said Hubble was the high point of her work there, and remains a landmark for NASA's success.

"It's an exemplary mission," she said. "No matter where I've gone in the world, when I've mentioned Hubble, there's never been a single person who didn't know what it was. That's a credit to the science, but also to how well NASA shared that science with the world."

Hubble's list of achievements is as noteworthy as the pictures are fascinating. Its imagery helped astronomers calculate the precise age of the universe: 13.7 billion years old. It also verified the existence of supermassive black holes and "dark energy," invisible cosmic particles that could explain the puzzling gravitational drag on stars and galaxies.

Looking back, Wojtalik is proud of NASA's continuing commitment to satellite-based space observation. "It was the most exciting time of my life," said the 40-year NASA veteran. "Hubble has done things that have never been done before. It's changed our understanding of the universe."

The writer, an ASRI employee, supports the Public Affairs Office at Marshall. The Public Affairs Office at NASA's Goddard Center contributed to this story.



Photo by David Higginbotham/Marshall Center

Earth Day tree planting

From left, Ben Morrow, Allen Elliott, Dr. Brian Natrass, Jim Carter, Mary Natrass, and Marshall Center Deputy Director Charles Chitwood shovel dirt Tuesday for the Marshall Earth Day Tree Planting Ceremony.

Marshall Space Transportation lead hosts 'Star Wars' movies on FOX-54

Steve Cook, acting deputy director of the Space Transportation Programs and Projects Office at the Marshall Center, recently recorded a series of spots for local FOX affiliate WZDX-TV in Huntsville, highlighting Marshall's and NASA's space transportation, propulsion and science research initiatives. FOX-54 will air the spots during its presentation of the "Star Wars" movies, prior to the theatrical release May 19 of "Star Wars III: The Revenge of the Sith." Tune in to FOX-54 and help celebrate the real "Force" behind future interplanetary travel! Showtimes are as follows:

- Episode VI: Return of the Jedi (Sunday, May 8, 3-6 p.m.)
- Episode I: The Phantom Menace (Sunday, May 15, 3-6 p.m.)
- Episode II: Attack of the Clones (Sunday, May 22, 6-9 p.m.)

Launch

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"I'm very confident that the team has their arms around this."

The new target launch date also gives managers an opportunity to review additional debris analysis work.

"STS-114 is a highly anticipated launch and our team at Marshall is excited we are nearing that goal," said Mike Rudolphi, manager of the Space Shuttle Propulsion Office at the Marshall Center. "We still have work left to do for STS-114 as well as getting the propulsion elements ready for STS-121."

Space Shuttle Atlantis is on schedule to roll out to the launch pad May 23 for STS-121. That mission has a July 13 to July 31 launch window.

Announcements

Heffelfinger top employee for March in Shuttle Propulsion



Mike Heffelfinger was named the March Employee of the Month in the Space Shuttle Propulsion Office. Heffelfinger, who is employed with United Space Alliance in Huntsville, was recognized for his work with the Propulsion Systems Engineering and Integration Office. He is credited with developing an interactive systems issue database. The database presents systems issues in an easy to understand format. This allows multiple technical panels and systems integration issue lead engineers from other NASA centers and contractor support sites to better work together.

Employees with Lean or Six Sigma certification sought

The Marshall Center is seeking civil servants who have received Lean or Six Sigma continual improvement training or certification. Center representatives would like to talk with employees who have this training as part of the center's ongoing workforce capability assessment. Contact Patty Fundrum at 544-8436 for more information.

Applications being accepted for Planetary Summer School

Applications are due June 3 for NASA's 17th Annual Planetary Science Summer School, which runs July 25-29 and Aug. 1-5, at the Jet Propulsion Laboratory, Pasadena, Calif. Science and engineering post-doctoral and graduate students with a strong interest in careers in planetary exploration are encouraged to apply. Partial financial support is available. For application and other information, go to <http://www2.jpl.nasa.gov/pscischool/>.

AIAA Awards Dinner and Town Hall Meeting is May 17

The AIAA Alabama-Mississippi Section Awards Dinner and Town Hall Meeting with AIAA National President Dr. Don Richardson will be May 17, at Holiday Inn Research Park. The meeting begins at 6 p.m.; the dinner at 7 p.m.; and the awards ceremony at 8 p.m.

There is no cost to attend the meeting. For dinner reservations, contact Kevin Higdon at 256-679-3143 or email him at: Kevin.Higdon@kph-research.com by noon May 16.

Instrumentation Division retirees meet Tuesday

Astrionics Lab Instrumentation Division retirees and friends will meet at 11 a.m. Tuesday at the Redstone Golf Course Restaurant. For more information, call Tom Escue at 232-1549.



Calculating the Cotton Row

From left, Marshall Center Director David King, Space Shuttle engineer Sam Ortega, and Mike Rudolphi, manager of the Space Shuttle Propulsion Office at Marshall, talk about finish times for this year's Cotton Row Run, held each year on Memorial Day. The MARS Club is coordinating formation of Marshall teams to run in the event. Call Ortega at 544-9294 by May 15 for team information.

Photo by Emmett Given/ Marshall Center

Classified Ads

Miscellaneous

Computer desk, \$40; sofa/love seat, \$400; coffee table, \$50; large dresser, \$100. 256-534-0939

Set of 4 wheels and hubcaps for 1999 Honda Accord, \$75. 828-5879

Marquise diamond anniversary band, 2 carat, high clarity & color, have all papers, \$2,000. 859-4048

Pair of adjustable auto stands, rated 4K pounds, \$7. 881-4028

Table, 4' glass top w/intricate iron base and 4 chairs, \$500. 882-7799

Pennsylvania House video cabinet, Cherry, up 50 30" TV, VCR/DVD, \$750. 931-427-2059

Certificate for a weekend (two nights) at the Huntsville Hilton, \$100. 536-8692

Ashley Queen Anne living room cocktail & 2-side tables w/inlay top, Cherry glossy finish, \$250. 880-3737

Full-blooded Siberian Husky, blue eyes, gray/white, good natured, papers available. 345-9258 after 5 p.m.

Two Valhalla Crypts, side-by-side in Masonic Bldg., all charges included, \$5,500. 1-860-558-3063

Audio/video cabinet, 27" TV, 4-shelves, glass door, 2-drawers, wooden door, 44"Hx21"Dx49"L, \$100. 772-7262

Chain link fence, 260', 2-10' gates, you take up or help take up, \$500. 233-1487

Pioneer 300 disc CD player, \$120; stereo amplifier, \$50; AM/FM digital synthesizer tuner, \$50. 922-9311

John Deere riding mower w/bagger, 9HP, \$350; Viking Rose embroidery sewing machine, \$1,300. 656-2951

Arm's reach co-sleeper bassinet, can be used as play yard & changing table, \$85. 508-6989

Wedding band, Men's Titanium 14K stripe thru center, size 9-1/2, new, \$80. 679-3921

CRT Monitor, 17", Viewsonic A75s, \$75. 355-7748 after 5 p.m.

Gas weed eater, \$60; stationary bike, \$50; large cooler, \$20; CD/cassette boom box, \$20. 881-4067

Dell Inspiron 6000 laptop, 1.3GHz, 30G HD, purchased March, 2005, \$750. 880-8464

Office Depot gift card, \$200 value, \$160. 776-4175

Poker set, 500 clay composite chips, two new decks of cards, 5 die, case, \$50. 256-658-4325

Electric scooter w/battery charger, red, \$100. 828-0758

Desk, 30"x60", solid oak, 3-drawers each side, center tray, \$375; matching filing cabinet, \$135. 256-536-8414

Old Town canoe, Discovery 169, new in 1998, \$400. 256-859-6538

Above ground pool w/wedding cake steps, Hayward sand pump, new liner in 2004, \$250. 256-931-4678

Compacted stacked washer/dryer, \$150; compacted stove,

\$80; couch, \$25, coffee table, \$20. 256-858-5552

Mission style queen headboard, \$55; Honda XR100 dirt bike, \$999. 256-430-9544

Craftsman workbench w/lighted back-panel, new in box, \$300; computer desk, \$125. 776-9165

Men's leather coat, size 42, \$30; ladies blazers, size 10-12. 852-6952

Maytag dryer, gas, \$85. 509-7907

Coach handbag, black, \$25. 256-757-0469

Camper shell for short S-10, \$125; Sunn Model-T guitar amp, \$500; Bach Stradivarius trumpet, \$1,200. 851-8085

Singer sewing machine, Model 301 w/cabinet, \$50. 534-4968

Whirlpool wall oven & microwave unit, black, \$250. 881-2643

Go-cart frame with air-inflatable tires, \$30. 880-6146

Antique Oak, 24"x24" occasional table w/shelf, \$200; antique Oak chest w/hat box, \$350. 883-5543

Ratan rocking chair w/plaid cushions, \$300; Ethan Allen swivel rocker & ottoman, white, \$350. 776-9294

Total gym, \$150. 464-9408

Large formal white sofa, \$100; formal chairs, \$25; Sega CD Power Rangers game, \$5. 430-6842

Double oven, \$60; upright freezer, \$60; fiberglass shell for long bed pickup, \$425. 227-0339/Dave

New Dell 8400 computer, 17" flat monitor, DVD/CD burner, 3GHz-P4, 150GB HD, 128Mb video, \$895. 655-1986

Two tickets Talladega Races, April 30 & May 1, Tri-Oval Tower, Section D, \$320. 256-716-1554

Mobile adjustable basketball goal w/weighted base, needs net, backboard and rim good, \$50. 882-0271

Vehicles

2003 Mitsubishi Evolution VIII, 4-dyl., Turbo, 5-speed, 28k miles, black, one-owner, \$24,500. 603-3988

1998 BMW 740 IL, hunter green, tan leather interior, 103k miles, new tires, \$16,000. 682-0888

SeaRay Sorrento cabin cruiser, 25', V berth, mid berth, many extras, \$13,500. 961-0288

1992 GMC Hi-top conversion van, 89k miles, trailer hitch, tv, am/fm cassette, front/rear a/c, \$4,490. 881-8674

1995 Chevrolet pickup, 99k miles, 4.3L Vortec v6, \$5,500. 828-1253

1997 Suburban LT, 4WD, white, 3rd seat, 177k miles, new transmission, \$6,750. 256-651-1288

1995 Toyota 4-Runner, SR5, loaded, black w/gray leather, 230k miles, \$5,100. 256-391-4144

2004 Toyota 4Runner, SR5, 47k miles, gray, 23mpg, \$22,750. 828-0815

1993 Chevy Blazer Z71, 350/v8, auto, a/c, tow package, two-tone, 110k miles, \$8,300. 882-7350

2000 Nissan Frontier, 4-door crewcab, silver, auto, am/fm/cassette/cd, 93k miles, v6, bedliner, pl/pw, \$11,500. 880-9025

2003 Nissan Pathfinder, v6, 2WD, automatic, 4-door, 23k miles, leather, CD, tow, silver, \$23,500. 880-3337

1996 Seado XP, many extras, \$3,500 or will trade for ATV. 256-572-1197

1998 Acura, 2.5TL, dark green, tinted windows, leather, Brawl, new tires, more, \$9,500. 797-7829

1992 Honda Accord LX, 29mpg, all-power, a/c, cruise, 210k miles, new timing belt. 256-461-7786

1999 Ford Explorer XLS, 4x4, loaded, 75.6k miles, \$8,299. 353-3229

1998 Honda Civic EX, 2-door, 5-speed, loaded, 70k miles, \$6,500. 656-1146

2002 Suzuki Intruder VS800GL, 3.5k miles, chrome, adult driven, unlimited mileage warranty, \$4,400. 509-5375

1996 Chevy Silverado Xcab, black/tan, auto, power, leather, 134k miles, \$6,000. 256-679-3565

1974 Glassmate bass boat, 85 Evinrude, new powerpack/coils, new trolling motor, new fish/GPS unit, \$1,495. 883-9884

1989 Coachman Classic travel trailer, 33', central heat, overhead A/C, receiver, sway & leveler, \$3,995. 683-3745

2004 Ford Expedition XLT SUV, 4.6L, loaded, 3.8k miles, \$30,995. 206-0792

Nissan 300ZX setup for Chevy v8, no engine, rebuilt 350 turbo, auto transmission w/Kevlar bands. 797-8895

1993 Chevy Blazer, gray, 2wd, all-power, 111k miles, \$2,200. 520-2802/Ron

Nitro Bass boat, 150HP Johnson FICHT engine, includes 12/24 T/M hydraulic steering, onboard charger. 256-259-0530

Murray mini bike, 3.5HP, \$350. 256-355-1542/Jeremy

2002 Camaro, v6, auto, 45k miles, black, T-tops, 35th Anniversary Edition. 683-8801 after 6 p.m.

1974 VW Karmann Ghia hardtop, burgundy, \$2,800; 1977 Yamaha SX750 motorcycle, maroon, \$1,000. 233-4680

Wanted

Slow-pitch senior softball for men over 55. For information, call Ray Beverly, 859-7419

Someone to do china painting. 256-351-1204

Pint and quart canning jars. 656-2965

100th Shuttle Flight Bookmark; will pay reasonable amount. 303-3702 after 5:30 p.m.

Chess Master Program. 256-232-0188

Free

Sweet shepherd mix brown dog, 2 yrs. old, spayed, shots, 35 lbs. 797-7620

Kittens. 828-3181

MARSHALL STAR

Marshall Space Flight Center, Alabama 35812
(256) 544-0030
<http://www1.msfc.nasa.gov>

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